MEMOIRS OF THE
ARCHÆOLOGICAL SURVEY OF INDIA

No. 36
THE DOLMENS OF THE PULNEY HILLS

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The orientation of the Dolmens is given by their position and direction on the plate, the top of the Plate corresponding to the North.

shows the enclosing walls of the groups.

shows the standing slabs, or walls of the chambers.

shows the pieces of cap-stones standing against the walls of the chambers.

shows walls which complete the enclosure of a chamber.

Faint outlines and crosslines show the position and form of the cap-stones at present covering the chambers, or broken pieces of the same now lying on the ground.

Dots thus . . . . . . mark the probable position of a destroyed or missing slab.

The numbers 1, 2, etc., used with the plans and photos, refer to the Dolmens marked on the Maps.

Numbers alone as 1, 2, refer to the Palamalai Dolmens;

Numbers preceded by M, as M-8, to the Machur Dolmens; and

Numbers preceded by P, as P-4, to the Perumal Dolmens.

THE DOLMENS OF THE PULNEY HILLS.

THE number of Pre-historic remains on the Lower Pulney Hills is certainly remarkable. Groups of Dolmens are to be found at Kamanur, at Pachalur, on the flat of Tandikudi, on the ridge South of the Mulyar torrent; and, nearer to Kodaikanal, on the slopes of Machur and of Perumal; in the Vilpatti valley, at Palanghi and round Palamalai. Many of these, however, are little more than ruins, or heaps of stones; and of these stones there sometimes remains just enough to show the existence in former times of an artificial structure with chambers and walls, but "etiam periere ruinae!"

At Tandikudi, for instance, east of the Forest Bungalow, six groups of Dolmens may be seen bordering the road to Manalur, and two others a little more down. The slabs and stones have been freely used for road-making and building purposes, and the same fate is evidently in store for the remains of what was a splendid set of monuments. Judging from the position of the broken slabs still fixed in the ground, one may count in these six groups 3, 11, 8, 4, 14 and 6, chambers respectively; of these 46 chambers three only remain standing with their covering slabs; while a row of large stones, still seen here and there laid out in regular order, shows that there was formerly a wall all round.

The destruction still goes on near the villages and along the roads. The best group of the Dolmens of Machur (Plate VI, *a*), near the Forest Bungalow, at a sharp turn of the Ghaut Road, and a little beyond the 18th milestone, was greatly damaged by the road-makers some years ago, and use is being made of what remains to repair walls and culverts whenever there is need, which is rather often. Out of three groups near Neutral Saddle, at the foot of Perumal Malai, the smallest one was completely destroyed for this very purpose, and another greatly damaged, in May, 1925. If such destruction can take place in our days and under our very eyes, it needs no special gift of prophecy to foresee that before long not a single stone along the public road and within the reach of contractors and their coolies will escape their ravages.

It is high time, therefore, to take a few sketches of what is left, and to put on record the data still available of these pre-historic relics. To have a correct idea, as far as is now possible, of the original condition of the Dolmens of the Lower Pulneys, one must go out into the jungle, far from the paths of civilized man. Here and there, more or less hidden under the high grass and bramble, one may find a few groups relatively well preserved. The best of all, to my knowledge, are those of Palamalai, a small village about

nine miles away from Kodaikanal. It is with these that the following account is especially concerned.

The matter may be conveniently grouped under four headings:—

1. Topographical Distribution of the Dolmens.
2. Their Description.
3. Their mode of Construction.
4. The Purpose they may have Served.

1. Topographical distribution of the Dolmens.

(Cf. Map of Palamalai-Machur, Pl. VI.)

Under the designation "Dolmens of Palamalai", I include the groups situated on the hills between the Talayar stream on the North and the stream south of the Palamalai estate. These are now accessible by the bridle path, about 5 miles long, cut in 1922 by the Jesuit Fathers of Shembaganur, between Palamalai and the 16th milestone on the Ghaut Road. The way first crosses the gentle slopes below the plantain and coffee plantations of Machur, not very far from six groups of Dolmens, three of which are visible on the left: one on the slope below the Ghaut Road, another midway on a small 'col' or ridge, and the third facing the hills of Palamalai, on a slope towards the Talayar. The path then crosses the Talayar and Togayar streams, just above their confluence, and climbs up to the saddle west of Hill 4395, whence, after crossing three small torrents it reaches the opposite range of the hills of Palamalai.

The Dolmens are found more or less scattered along two ranges of small hills (See Map of Palamalai-Machur, Plate VI). Not counting such as are now mere ruins, there are ten groups on the northern range, and eighteen on the southern slopes round Palamalai. From the bridle path crossing the ridge west of Hill 4395, two groups are visible on the western slopes: these are marked Nos. 1 and 2 on the map. (For plan, see Plates IV, *a* and V, *b*). After climbing Hill 4395. you may see at a short distance from the top, towards the east, a line of massive structures, that might be compared to three mediæval bastions standing out at various angles. (It may be remarked by the way that this appearance is the obvious reason why the Dolmens are called by the people of these regions *Pandyan Kotai* or Pandyan forts). These square-walled groups separated by two feet and one foot and a half respectively, are marked Nos. 3, 4, and 5, on the map. On the northern side, nearly perpendicular to this line and at a distance of 30 feet from it, there is another rectangular bastion, facing Machur (No. 6). (For plan, see Plate IV, *b*; and photo, Plate I, *e*). And, further off eastwards are the ruins of an isolated chamber, No. 7 (Plate IV, *a*), while on the southern slope another group of 4 chambers, No. 8 (Plate IV, *a*) stands half way towards the bottom of the valley.

On the opposite side of the ridge, on a precipitous cliff, two groups are found (Map of Palamalai-Machur, *a* and *b*; Plate IV, *a*); and if you try from

there to reach Palamalai by cutting across the jungle, you will find on the way the ruins of two more, *c* and *d*, and in the coffee plantations the ruins of a small group just beyond the present graveyard, and of a larger group, *e* and *f*, quite near the village.

From the house at Palamalai, one can see on the hillock to the east the walls and covering slabs of two more groups, Nos. 12 and 13 (Plate V, *a*); but on that same hill there are as many as nine groups in all, marked on the map Nos. 9, 10, 11, 12, 13, 14, 15, 16 and 17. Two of these are semi-circular, Nos. 15 and 16 (Plate IV, *c*); but there is a larger and circular group, No. 23 (Plate IV, *c*), further off, on the eastern slopes of Hill 4185. Finally, to the south-east of Palamalai, five other groups are to be found scattered about, Nos. 18, 19,* 20, 21 and 22 (Plate VI, *a*).

Ruins of many more may be found here and there south of the plantation, on the slopes facing the plain near Devadanapatti, and on the slope of the Adukkam ridge facing Palamalai. These are interesting only in so far as, belonging to a very large collection of Pre-historic buildings, they tell their significant tale of the density of the population that once throve in this wild tract of country; moreover, showing as they do to the careful observer the selfsame characteristics as are found in the better preserved dolmens, they enable him to give a description which will embrace all the dolmens of Palamalai, Machur, Perumal, and of the Lower Pulneys generally.

2. Description.

The Dolmens of the Pulney Hills are everywhere found in groups. *Isolated chambers* are rare exceptions. There is one on Hill 4395 (Plate IV, *a*, No. 7), surrounded with walls the basements of which are still visible. Two more are on record: one on the Ghaut Road, at the sharp turn between milestones 20 and 21, above point 4736; the other on a small plateau on the slopes east of Vilpatti. But the former, now completely buried (the covering slab has been removed and most likely broken into pieces by the road-menders, who were very busy on that spot in August, 1924), may be one of several still unearthed; the second seems to be the only one now left of a formerly existing group, since there is another, very small, a few feet lower down; and adjoining this, further down the slope, there are traces of six roughly elliptical rows of stones, which would point to some pre-historic settlement. In the same valley, lower down on the western slope of Perumal Malai, and near a group of eight Dolmens (Plate V, *c*, No. P.-6), a few slabs hardly appearing above the ground show the existence of three narrow chambers completely buried, which may have been isolated Dolmens.

The *groups* contain no fixed number of rooms, which may be from 2 to 14, the most common number being 6 or 7. They were all without exception formerly surrounded with walls; and I know of no group, even of those now in ruins, in which evidence of the enclosing walls cannot be detected. A few Dolmens are now partially embedded in a mound of earth and rubble covered

over with wild vegetation. Was this mound a primitive feature of their construction? This would seem to have been the case in other countries, where the Dolmens were either buried in the ground, or covered over with earth*; but there the chambers were generally isolated, not in groups as here; and the fact that in nearly all the Dolmens of the Pulney Hills the mound is invariably on the side which could stop the debris carried down by running waters, points to a sufficient explanation of its presence.

Enclosure within walls then is a special feature of the Dolmens of the Pulney Hills. These walls are very regular, made up of rough blocks of stone of no fixed size, some rather large, and cleverly adjusted without any trace of mortar or of the red clay commonly used in the country as a cheap substitute for a better cementing material. Their form is usually rectangular, sometimes nearly square, as shown in Nos. 3, 4, 5, 10, 12, etc. Perfect squares are an exception. Of such I know only of three, measuring respectively 24′×24′, 22′×22′, and 20′×20′. Semi-circular forms are found in the three groups, Nos. 15, 16 and part of No. 11 (Plate IV, *c*, Nos. 15 and 16 and Plate V, *b*, No. 11). No. 23 is the only group where the polygon tends to be a perfect circle, the longest diameters measuring 41 and 39 feet. The rectangular shape, commonly found, is, however, rarely perfect; frequently it represents a triangular figure with a truncated apex. Take as an instance No. 1 (Plate IV, *a*, No. 1): the dimensions of its sides are 35′ 10″, 33′ 2″, 30′ 5″, and 17′ 4″ respectively. The average length of the walls varies from 36 to 20 feet on the longer sides, and from 31 to 14 on the shorter ones. The ground-plans represented in the Plates will give an idea of their interesting variety in form and size. The height is more than six feet in Nos. 5 and 6, five feet in Nos. 3, 1, etc., but even the highest walls may have lost one or more of their original tiers of stones. At all events, the walls appear to have been built up to the level of the cap-stones covering the Dolmens.

The *chambers* are formed normally of six slabs, one slab lying horizontally on the rock or a few inches above it and forming the floor, and the covering slab being supported by four upright stones (only three being now visible in several of the Dolmens), of very unequal size. The length of the longer sides varies from 14 to 6 feet, of the shorter sides from 5 to 2 feet, inside; the height is between 7 and 3 feet. At times, chiefly on the longer sides, instead of a single slab there are two or three smaller ones, even a piece of wall, may fill up the gaps between two slabs. (See Plate V, *a*, No. 14 and No. M.-8.) The covering stones largely overlap the vertical slabs; several of them, apparently still unbroken, measure from 14′ 9″, or 13′ 7″ to 9′ 10″ in length, by 8′ to 4′ in breadth. Two or three are occasionally superposed so as to cover completely the interior cavity. The average size of the latter is about 8′ in length by 3′ across and 4′ in height.

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* Cf. *Anthropos*, 1907, p. 135. "Sur quelques stations dolméniques de l'Algérie," by Louis Levistre.

The author of the article states that the Dolmens he is describing were primitively buried, and have been brought to view by the action of rain, etc. On the other hand, General Faidherbe affirms that out of 10000 chambers he visited, none appears with certainty to have ever been underground.

As the walls of a group may follow any *direction*, this being only in a few instances dependent on the slope of the ground, so also the chambers in the group itself seem to follow no fixed rule as regards their direction (See Plate V, *a*). On the slopes of Machur, there are two groups, each containing two Dolmens side by side and parallel to the longer wall (See Map Palamalai-Machur, Nos. 6 & 8). When there are three Dolmens, two of them are parallel to the long wall, and the third is generally at right angles to them on the narrower side of the whole structure. When there are four, six, seven or nine, they are generally disposed in two rows more or less irregular (See Plates IV and V). In the groups that are more or less circular, the chambers may be disposed in a radiating figure, as in No. 16 (Plate IV, *c*, No. 16); or only those along the lower part, the others being at any angle, as in Nos. 15 and 23 (Plate IV, *c*).

Rarely are the vertical slabs found firmly planted in the ground; they generally stand directly on the bare rock, the distance between them being determined by the dimensions of the horizontal floor stone. They are kept vertical by the walls of the enclosure to which they are often parallel, and by a mixture of earth and small stones filling up the spaces between the chambers, and, if need be, between the chambers and the walls. Thus protected they could not collapse on the outside. Inside, collapsing was made impossible by the fact that the slabs at the narrow ends were placed between the side slabs, leaning against them, and that all the vertical stones slanted outwards. The larger cap-stone is placed directly on top of the four vertical slabs, with a gentle slope so as to lead the rain water away towards one of the sides, usually the long side. Its stability is secured by its own weight, and in some cases by means of small flat stones inserted here and there. Though many have been broken and thrown down, often causing the fall of one or two of the vertical slabs, several are still found perfectly well preserved, and there are numerous instances of the vertical slabs standing unaffected by the destruction of the cap-stones.

Besides the large rectangular chambers, which form the Dolmens properly so-called, there are in several groups smaller *rectangular boxes*, of an average size of 3′ 8″ to 2′ in length, by 3′ to 1′ 9″ in breadth, and built on the same principle as the larger rooms: a square slab below, 4 vertical stones and a covering slab. Several of them are well preserved, and even the cap-stone is still there, for instance, in Plate V, *b*, No. 10. In many cases, however, it is only possible to guess at the former existence of these small structures by seeing the position of the broken portions of the vertical slabs still fixed in the ground. Their number and position are exceedingly varied, as may be seen from the plates. The most complete set is found in group No. 10 (Plate V, *b*), where there are four such 'boxes' corresponding to the five Dolmens forming the upper row of a group of nine; and also in No. 23 (Plate IV, *c*), where six may be traced by the side of seven chambers. Two 'boxes' are found in No. 2 (Plate V, *b*), and in No. 15 (Plate IV, *c*), and only one in several other groups. One other peculiarity may here be mentioned. In

many of the groups, but chiefly in those where no trace of such 'boxes' is to be found, you may see in the chambers, generally at the narrow end, a corner about one and a half or two feet long, marked off from the rest by a vertical slab of which only the lower portion now remains in those Dolmens that have been opened, and this is the fate of most of them. See Plate IV, *a*, Nos. 1, 7, 8; and Plate IV, *b*, No. 6.

There is, however, a feature peculiar to two groups of Dolmens in the Vilpatti valley, situated on the western slopes of Perumal Malai, on either side of the path from Neutral Saddle to Palni, and marked 6 and 7 on the map of Perumal (Plate VI, *b*). These are surrounded by several *small heaps of stones* regularly disposed in lines parallel to the sides of the group, the upper line being incomplete in one of them. Plate V, *c*, Nos. P-6 and P-7, shows their number and position in May, 1925. But one may entertain serious doubts as to the date of these structures, the materials of which have evidently been borrowed from older walls. They may have been the pastime of shepherd boys; and it may be a gratuitous hypothesis to find in this piece of work the idea of circumscribing the sphere of influence of the spirits of the dead or of the gods. Superstitious ideas did not prevent the former visitors of the Dolmens from destroying chambers and walls, and turning the materials thus gathered to more or less practical uses.

Such are the main characteristics of the Dolmens of the Pulney Hills, as they are seen from the outside by any observer who is not prepared to further the work of destruction by indiscriminate digging. There are no traces of carvings, drawings, or inscriptions other than recent scribblings. Well conducted excavations, with special precautions to support the still standing vertical slabs, might perhaps bring to view further interesting details, especially on these two points, *viz.*, how these substantial structures were erected, and the purpose they were intended to serve.

3. How the Dolmens were constructed.

From the present site and position of the Dolmens, and from the rough materials seen close by or in similar places, it is comparatively easy to form an idea of the process of construction.

Neither on the stones used for the walls nor on the slabs of the chambers is there any mark of cutting or dressing with any instrument. The Dolmen-builders seem to have depended exclusively on the blocks found at hand, and this may explain why these Dolmens are invariably erected on rocky ridges or slopes, or immediately below a large expanse of rock. Actual observation shows in similar positions cubes of gneiss or charnockite, somewhat irregular, which at a distance suggest the idea of some unfinished or half-ruined cyclopean wall. An instance of this may be seen on Hill 4395, just above Dolmen No. 1. Slabs of any dimensions could be found in the same places, already detached from the surface of the rock under the action of sun and rain. Many more could be easily removed by means of a crowbar. The materials were

therefore at hand, and the Dolmens were built precisely where the materials were available, generally a little below the natural quarry. It is indeed remarkable that no Dolmen is to be found quite at the top of any hill, peak or ridge, but always a little lower down.

The presence of suitable materials in a particular spot decided the position of the Dolmens. They were built up as a whole at once. One isolated chamber could be put up independently, as in No. 7 (Plate IV, *a*); but in the groups, the distinct and separate rooms could scarcely be erected one by one: the slabs generally stood on the bare rock, and could not retain their position unless held together by the enclosure walls on the outside, and by a heap of stones or earth on the inside.

One may imagine the whole process to have been carried out in the following way. The chief, or the supreme council of the tribe, having decided to erect a group of Dolmens on a suitable spot, the number of chambers is determined according to the number of slabs available in the immediate vicinity, while their size will depend on the actual dimensions of the slabs, their relative position being left to the free choice or caprice of the great men of the tribe.

A large slab, more or less rectangular, is first laid flat on the ground, smaller stones being placed at the corners, if necessary, to complete the rectangular floor. On the sides four vertical slabs are erected, fitting together approximately at the corners, two of them (the longer ones generally) leaning against the ends of the other two. A few stones outside, perhaps some pieces of wood inside, hold them up provisionally in precarious equilibrium. Then a second chamber is built in the same way, or perhaps a whole row of chambers, as in some groups. The walls are then erected, usually very close to the slabs, and the interstices between wall and chambers, and between one chamber and another, are filled up with stones. Other chambers large and small are added in various positions, and the wall is completed all round to the required level. And now, when the vertical slabs are standing firmly on their edges, begins the most difficult part of the whole work, the covering of the chambers. An embankment of earth and stones on the upper side of the group may have been used to bring the huge, heavy cap-stones to the top, at times six or seven feet above the level of the rocky ground. Were these placed immediately on their respective chambers, or left there on top, at hand, to be placed as occasion should require, for instance, on the hypothesis that the Dolmens were intended for burial purposes? But this second alternative is incompatible with the fact that in many cases the covering slabs overlap each other, or touch each other in such a way as to render difficult a later completion of the work without danger to the previously constructed rooms. Besides, there was no space left to store them up on top, except on the chambers themselves. In all probability then, the chambers of the whole group were covered in the course of the same process of construction, and then the upper tiers of the walls added, to the great satisfaction of the architects. And thus the building was complete, finished once for all.

This hypothesis also explains the existence of so many groups of Dolmens close to each other on the same spot. All the slabs and stones used to build Nos. 3, 4, 5 and 6, on Hill 4395, would form a single group of much larger proportions; and again, instead of building Nos. 14, 15, 16 and 17 (south-east of Palamalai) on four different spots, it would have been easy to bring all the materials to the site of No. 17, and there erect a more imposing monument. Working methods being necessarily slow in those days, the architects evidently chose the simpler way: instead of using all the materials at hand on a single construction, they first finished one small building, then began another of the same or of a different form, at a distance of a few feet or more. In three cases the new building has been simply juxtaposed on one side of a previously existing group, as is seen in the groundplan of No. 2 on Hill 4395 (Plate V, *b*, No. 2), and of No. 11 east of Palamalai (Plate V, *b*, No. 11), and in the Dolmen on Hill 5098, on the slopes east of Perumal Malai. Here the walls have been almost entirely destroyed; but a few slabs larger than the average still remain standing, showing the sites of seven or eight large chambers, and along the line of the southern wall a group of three more was added, and another group of three a little way off to the east.

4. The Purpose they served.

So far we have given a brief account of the essential features of the Dolmens of Palamalai and of the Pulney Hills in general, as they can be directly ascertained or safely concluded from the state of their remains. But as to the question of the purpose they were originally intended to serve, we must, unless and until future researches yield more evidence, confess to complete ignorance. Our excuse, then, for attempting to discuss the question briefly, is that it may help us to understand a few more features of these Dolmens.

Were they intended as ordinary *dwelling-places*? They were used in the past by refugees from the plains on occasions of war and invasion, just as they are even now of service to shepherds, and occasionally to pic-nic parties. This explains why nearly all of them, especially the larger ones, are open, one of the short slabs having been completely removed or half broken. In a few, at a corner between the tops of two adjoining ~~vertical~~ stones, there is a narrow breach large enough for a full-grown man to crawl through into the empty chamber. But was it so originally? A minute inspection of these openings leaves little doubt that one of the slabs has been broken long after the construction of the chamber. Were the chambers originally open at all? On Hill 4395, in group No. 5 (Plate I, *d*), there is one room filled up to the cap-stone with small stones, and the gaps at the corners are rather too narrow to give entrance at least to a grown-up person. It may have been filled at a more recent date with stones taken from the interstices between the other Dolmens, the latter being open, and either partly or completely empty. A careful excavation of this Dolmen might be of interest.

Remains of broken pottery found in many Dolmens are evidently of recent origin, They are of two or three different kinds, but their form and material

are the same as in the earthen pots still used for cooking, storing grain, etc. Even fragments of the common kind of bricks may be found, and have been used together with small stones to fill up the gaps on the floor between the horizontal and vertical slabs. But all this is obviously the work of modern hands.

But in pre-historic times, were these chambers intended as *places of shelter*? They are generally large enough for a small family to squat in at night: the huts of coolies in some places are not much larger even to-day. They are in groups, and the groups as a rule are not quite isolated, but seem to have belonged to a more or less extensive settlement. The isolated groups are never quite out of sight of other groups. They are built on hill-sides, in a prominent position, which commands a broad view of the country all around. Determined, no doubt, by the presence there of suitable material, the position may also have been chosen with a view to defence, as there would otherwise have been no great difficulty in rolling the stones down to build in a more sheltered spot. The chambers were proof against beasts of prey and the onslaughts of hostile tribes, and equally rain and sun-proof through their thick gently sloping cap-stones. The varied orientation of the chambers in the groups and of the different groups relatively to each other would have made it difficult for any invader to climb up the walls or to stand on top of any chamber without being at once observed and shot down with a shower of arrows or stones. In this hypothesis, that the idea was that of shelter and protection, the small square 'boxes' may have been for storing grain or any kind of dry food. As noted above, these 'boxes' are found in nearly all the groups; and where they are wanting, the square corner divided off by a vertical slab was perhaps intended as a substitute for them. It is a remarkable coincidence that such corners are invariably found at the narrow end of the Dolmens, and on the side which has been opened. If all the Dolmens had been closed rooms, it would have been surprising that they should all have been fractured on the side of this small 'box' or corner, unless signs of its existence were perceptible from outside. At all events, if these were stores of any sort, it is but natural that in later times visitors in search of hidden treasures should have begun with them in their work of destruction. So much for this hypothesis as to the purpose of the Dolmens.

It may be proposed in a slightly different form. Instead of serving as ordinary dwellings, the fortified groups of Dolmens were perhaps intended to be only *stores* (the smaller 'boxes' being reserved for more rare or precious articles), or rather to be *places of refuge*, at least for women and children, in the not infrequent case of attack by hostile tribes. The people's ordinary dwellings then may have been in the vicinity of the Dolmens, huts of earth and thatch grouped together on the top of the ridges for safety's sake, or perhaps lower down, less exposed to winds and storms, and not so far from water.

In support of this view, reference may be made to the interesting groups of small circular, semi-circular, or elliptical rows of stones well set in the

ground at Perumal Malai. They suggest the idea of primitive huts leaning against one another, of which only the stone foundations remain. (See the Map of Perumal, where they are marked by small dots). Of these circles I counted 135 in 8 groups, along the ridge of Hill 5749, to the S.W. of Perumal Malai, the lower ones being just above two contiguous groups of Dolmens marked 4 and 5 on the map, one of these, No. 4 (see also Plate V, *b*, No. P-4), including five large rooms and three or four small ones; the other, including five large rooms and traces of a sixth. Higher up, between two groups of such circles, are to be seen standing the slabs of another ruined Dolmen. On the parallel ridge of Hill 5863, there are about 80 circles in 6 groups, but no traces of any authentic Dolmen could there be identified. The number of stone circles differs very much in the various groups, ranging from 2 to 41, and they are somewhat closely packed together. A few seem to be isolated, though only a few feet apart from the others. Generally they are contiguous: the central one is a perfect circle; the others, semi-circular or crescent-shaped lean against the central one and against one another, a portion of wall being common to two adjacent huts.

These two settlements are not the only ones. There exists another group of eight similar rows of stones on the Vilpatti side of the Parappar River, on the northern slopes of a little plateau facing Neutral Saddle. These are all rectangular or oblong in outline, of a large and uniform size, and are situated below the remains of two Dolmens, one of which is a very small chamber covered with a rather thick stone. Other rows of stones, though less distinct may be seen between Palamalai and Machur, on the very top of a hill east of the bridle path, and above point 4006, a few yards above a group of four half ruined Dolmens. Many more of the same description may have existed, or may still be discovered by a careful examination of the ground, at least in places where the jungle is not too thick, and where the stones are not buried under the accumulated debris of vegetation. In some places, as in Palamalai, where the Dolmens are built on the bare rock, and nothing remains but scattered stones, all traces of similar circles must have been completely washed away with the little earth that may once have covered the rock.

When examining these rows of stones in detail, one cannot avoid the impression that it was once a human settlement, each circle marking the dwelling-place of a distinct family. These settlements may have been the ordinary homes of the Dolmen-builders. On that supposition it is easy to understand that the 215 families of the southern slopes of Perumal Malai could in a relatively short space of time build up several groups of Dolmens to use as their strong-holds. But were these settlements and the Dolmens really related to one another in time as they are now in space?

Again, could the Dolmens of the Pulney Hills have been intended to serve as *burial places*? The very name for a tomb in Tamil, *kallarai* or 'stone room', may be a survival of the ancient custom of burying the dead in a chamber made of stone, *i.e.*, in a Dolmen. This opinion, moreover, is one most commonly adopted by archæologists. In many parts of the world, Dol-

mens are popularly considered as monuments consecrated to the dead, if they are not actually tombs. Tombs, indeed, they often have been, since not only funeral urns, but fragments of human bones, even complete skeletons, have been discovered in them.

In our Palamalai Dolmens there is no record of anything of the kind. A large pyriform urn, containing two small shallow vases, unearthed at Palamalai in June, 1905, and those exhumed at Perumal farm some ten years before by Rev. Fr. de Beaurepaire, S.J., were found outside the Dolmens; and those found at Perumal, were found far away from any Dolmen; besides, there is no evidence even that these vessels were funeral urns. Again, Dolmens, when used as tombs, are usually covered over with earth, at least partially. But here they stand on the bare rock, enclosed in their rectangular or circular walls, and there is no trace or sign of the enormous heap of earth that would have been required to cover them. Evidently, the dead bodies could not be buried under the pavement stone; and in the large rooms, there is not the slightest evidence of their having been ever filled up with earth. Will the only Dolmen that seems to have remained untouched, and is now filled up with stones, in No. 5 at Palamalai, reveal anything that may help towards a probable solution of the puzzle? On the western slopes of Perumal Malai there are traces of three stone rooms isolated and at some distance from a group of eight Dolmens surrounded with the small heaps of stones mentioned above (see Plate V, *c*, No. P-6). On excavation, these three chambers might prove to have been real tombs, and they are in all probability of the same age as the neighbouring Dolmens.

Buried Dolmens.

A few dolmen tombs are actually found on the Mulyar ridge, between the 15th and 14th milestones of the Ghaut Road, on both sides of the Reserved Forest fire-line. Two of them are in a cultivated plot of ground near a small building at survey point 4177. In the centre of a circle of big stones, a large slab lies level with the ground and supported by vertical slabs, the corners of which are visible. There are two other such tombs in the Reserved Forest Cardamon Plantation, west of the road, one of them showing three, perhaps four, chambers. A little higher up, another chamber, apparently not surrounded by a circle of stones, has been dug out, the covering stone broken and one half of it pushed aside. Within, a stone bench measuring 66″×22″ rests on two transversal slabs, 22 inches from the bottom. A broken slab 75″× 34″ with a hole in the centre 15·6″× 12·6″ rested originally on the bench, dividing the cavity into two superposed rooms. In the process of excavation it has slipped down, and now rests on the ground, leaning against the bench (cf. plan). The four vertical slabs, well preserved, measure, inside, N.E. 66″× 49″, E. 68″× 66″, S. 66″×48″, W. 66″× 63″, respectively. The N. E. slab is pierced at 7″ from the W. corner with a hole 17″× 13″, which is closed outside with a stone. The entire dolmen is buried, the covering slab only emerges.

Such buried dolmens we may take to have been burial places for the owners of the numerous groups of ordinary dolmens scattered over the ridge, seven of which are found in the immediate vicinity.

Tombs of the same kind might be discovered near all the other groups of dolmens on the Pulney Hills. There is one below the Palamalai dolmen No. 11. It would be interesting to continue the investigations in the neighbourhood of the other dolmens of Palamalai, and to make excavations in a few more of those buried chambers, to see whether they show the same characteristics, the hole in one of the vertical slabs, and the so-called bench, or any other horizontal partition of the room.

Thus there are in Palamalai, Perumal, and near the Mulyar river, three different types of pre-historic buildings. (1) The ordinary dwelling places (?) represented by the numerous circles of stones in Perumal. (2) The fortified shelters (?), or the common dolmens above ground surrounded with walls, on the ridges of Perumal, Palamalai and the region round the Mulyar river. (3) In the immediate vicinity of these, buried dolmens or tombs, in the lower valleys, where the soil is deeper and now covered with trees and bushes.

Beside the Dolmens, as further pre-historic remains on the Pulney Hills, might be mentioned a few *low circles of stones and earth,* which look very much like the Cairns of which a description is given in the Annual Report of the Superintendent, Archaeological Survey, Southern Circle for 1914-1915 (page 39). Two of them, the largest, seem to be more probably the enclosures of abandoned villages, of which nothing is left but the ruins of their walls. One is situated on a hillock above the Ghaut Road, near the 28th milestone, below the village of Munjikal; the second runs round the top of a peak opposite the Vilpatti Falls. A third was discovered by the Rev. Fr. Hosten, S.J.[1], in May, 1905, on the way to the Parappar Falls towards Palni. Another is to be seen above the village of Shembaganur and Mitchell's Farm. Excavations of these two may show buried Dolmens or tombs.

As a conclusion to this summary account of the Dolmens of the Pulney Hills, may I be allowed to express the hope that systematic researches may be undertaken under the authority of the Archaeological Department, and that some steps may be taken without delay to protect against road-makers and others what still remains of our interesting Dolmens, or at least, of the best groups of them, which are those of Palamalai, on Hill 4395 ?

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[1] Rev. Fr. Hosten, S.J., *Missions Belges,* 1905, p. 13.

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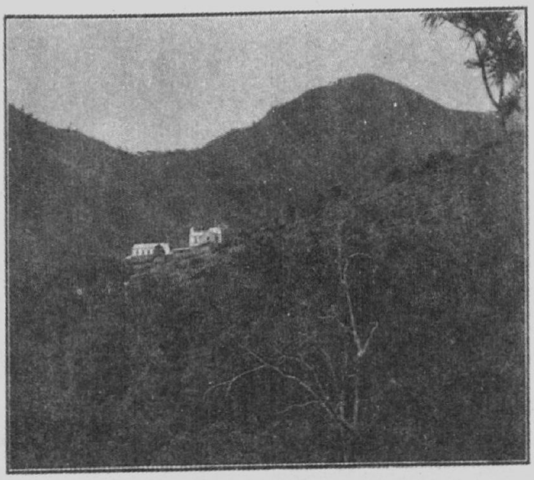
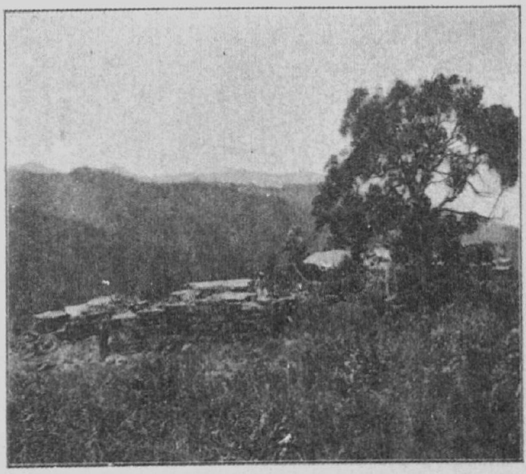
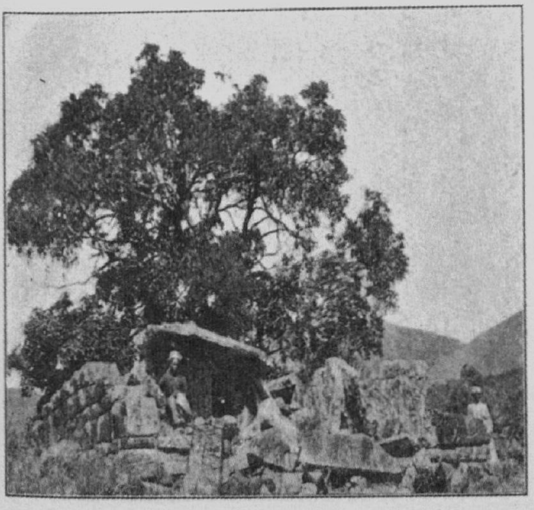
DOLMENS OF THE PULNEY HILLS.



a. THE PALAMALAI ESTATE, LOWER PULNEY, WHERE THE MOST INTERESTING DOLMENS ARE TO BE FOUND.

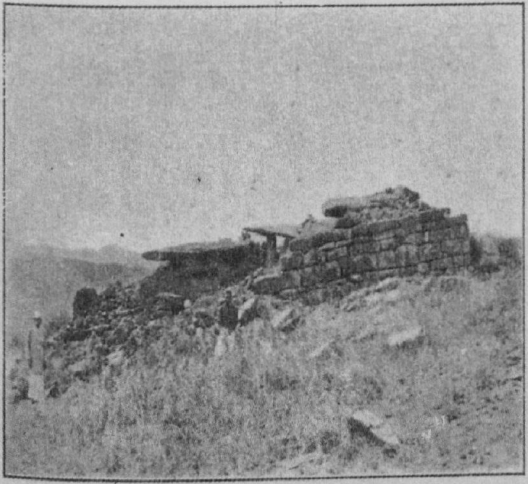


b. DOLMENS NOS. 5, 4, 3 AND 6.



c. DOLMEN NO. 4.

d. DOLMEN NO. 5



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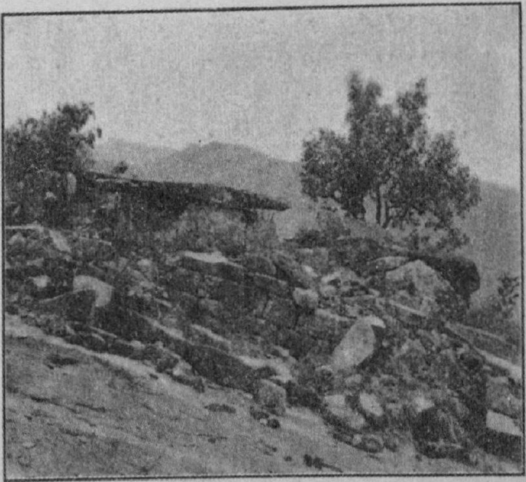
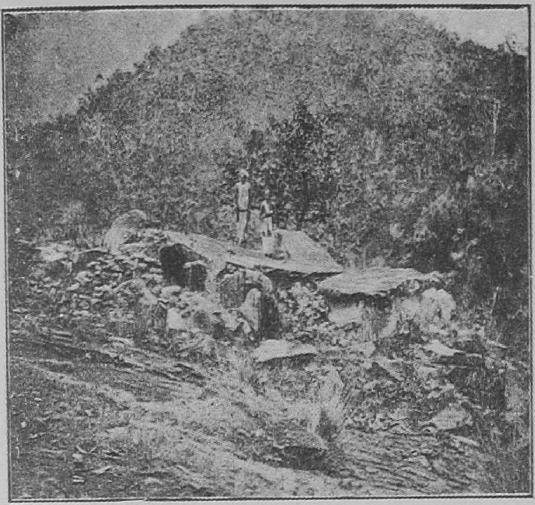


f. DOLMEN NO. 10, SOUTH VIEW.

DOLMENS OF THE PULNEY HILLS.



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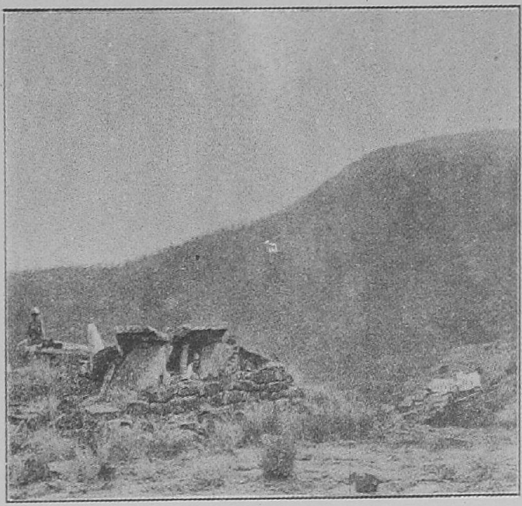

b. DOLMEN NO. 12.

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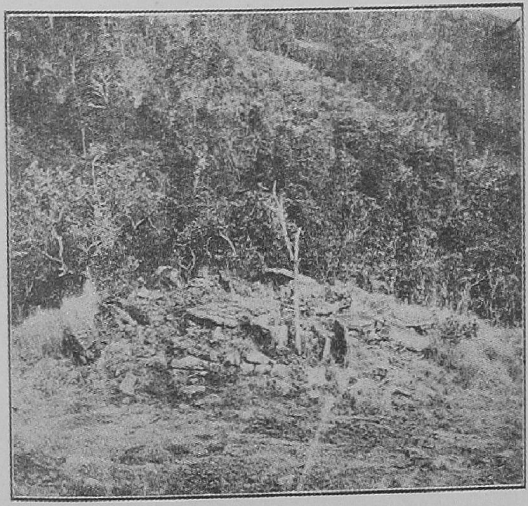
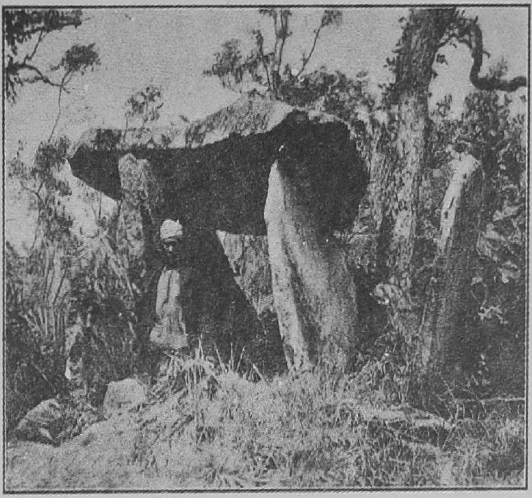


e. DOLMEN NO. 15.

f. DOLMEN NO. 16, EAST VIEW.

a. DOLMEN NO. 16, NORTH-EAST VIEW.



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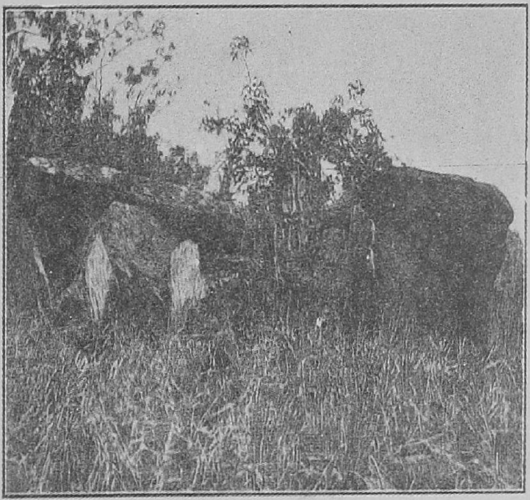

d. DOLMEN NO. 23, SOUTH VIEW.

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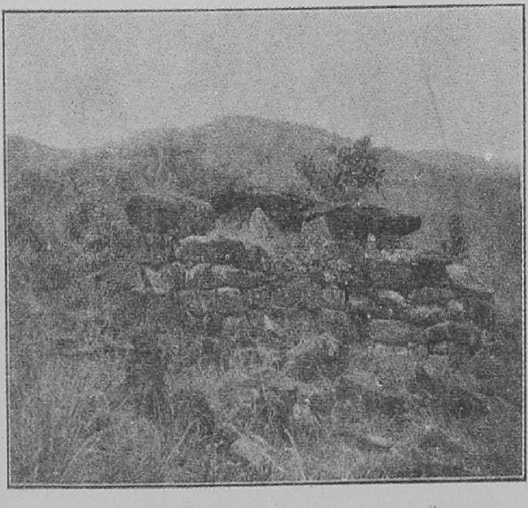

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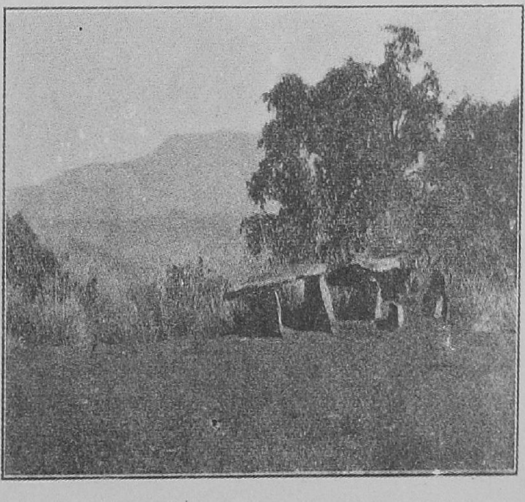
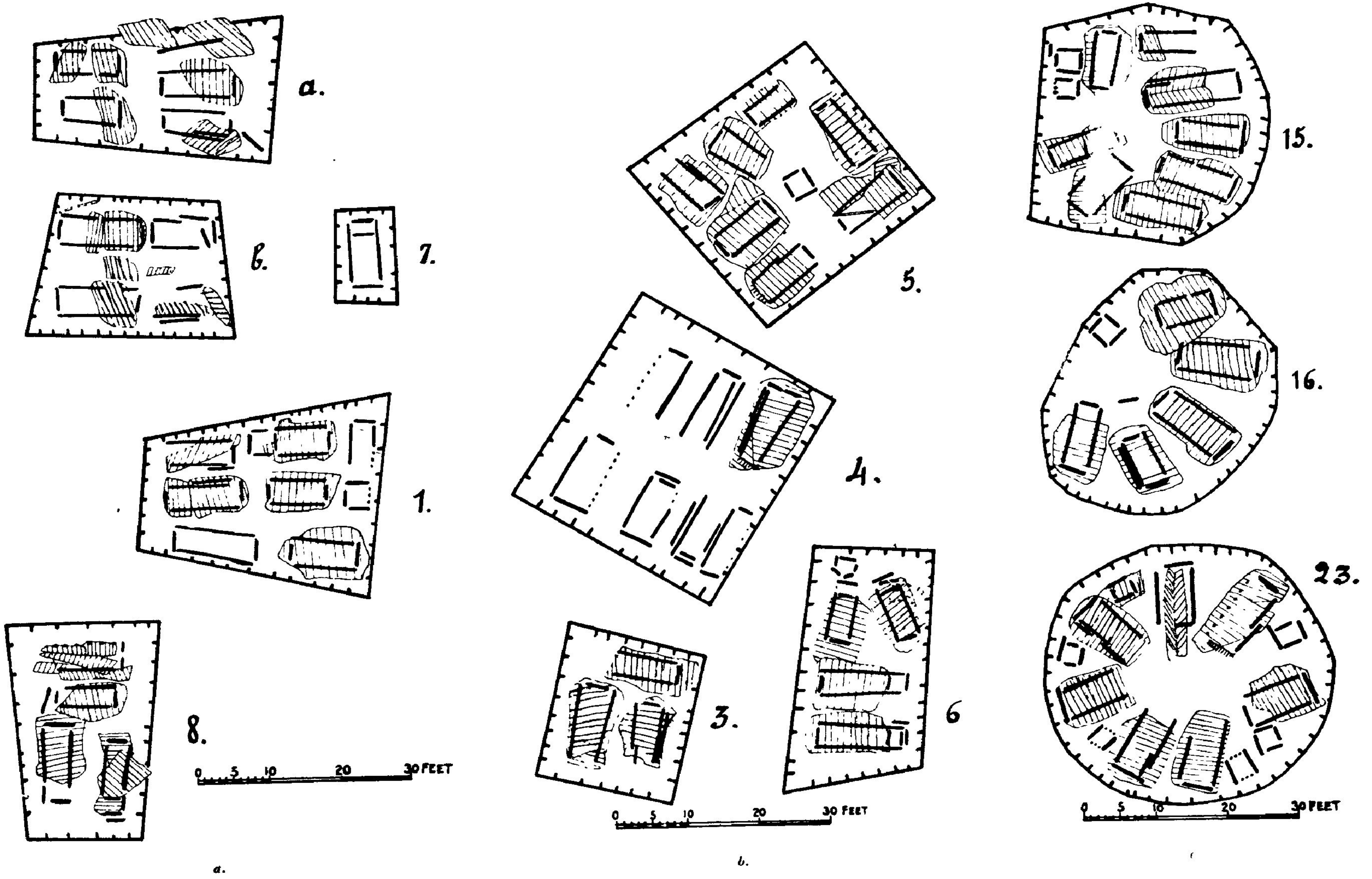
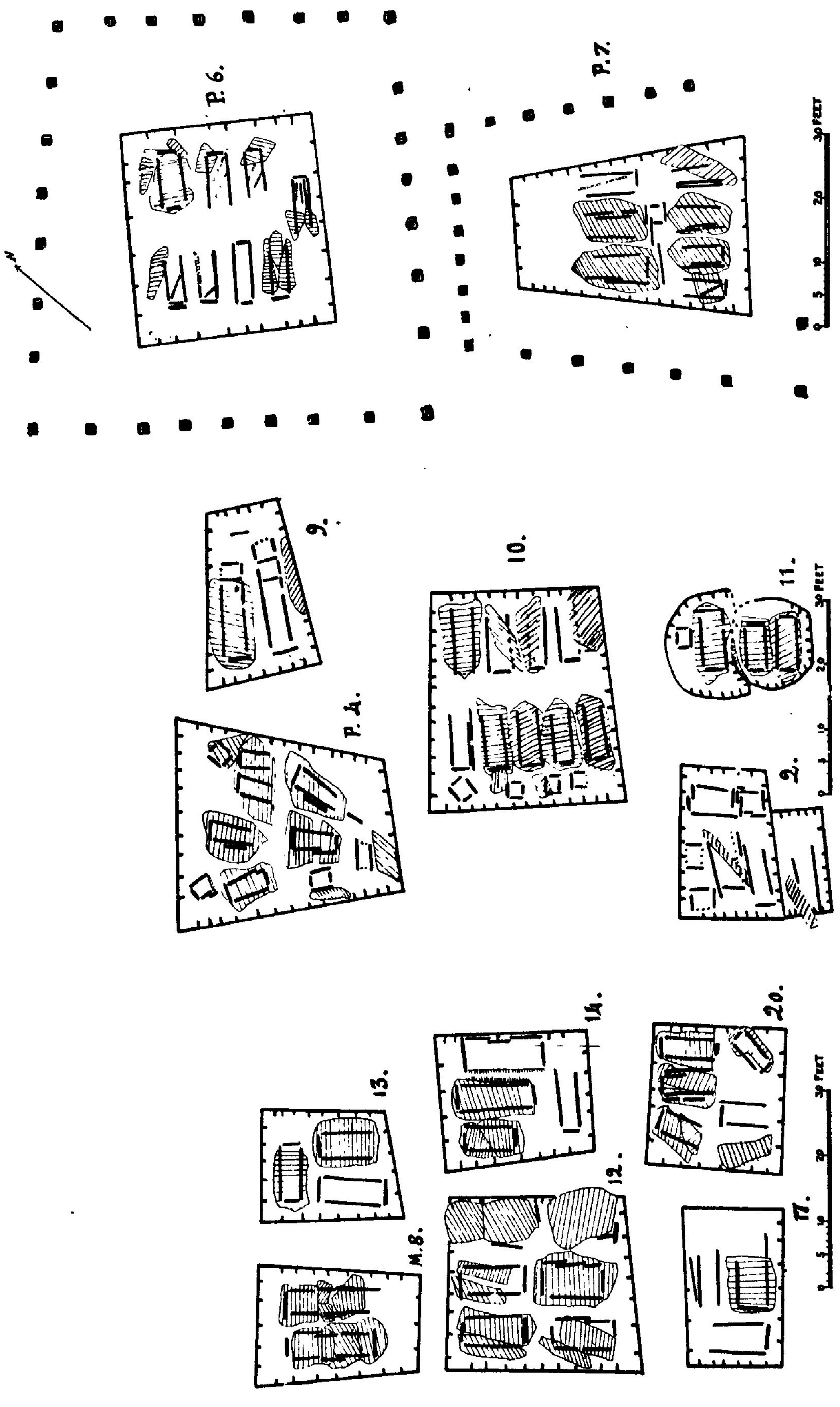


f. A DOLMEN BELOW VILPATTI.

Dolmens of the Pulney Hills.



DOLMENS OF THE PULNEY HILLS.



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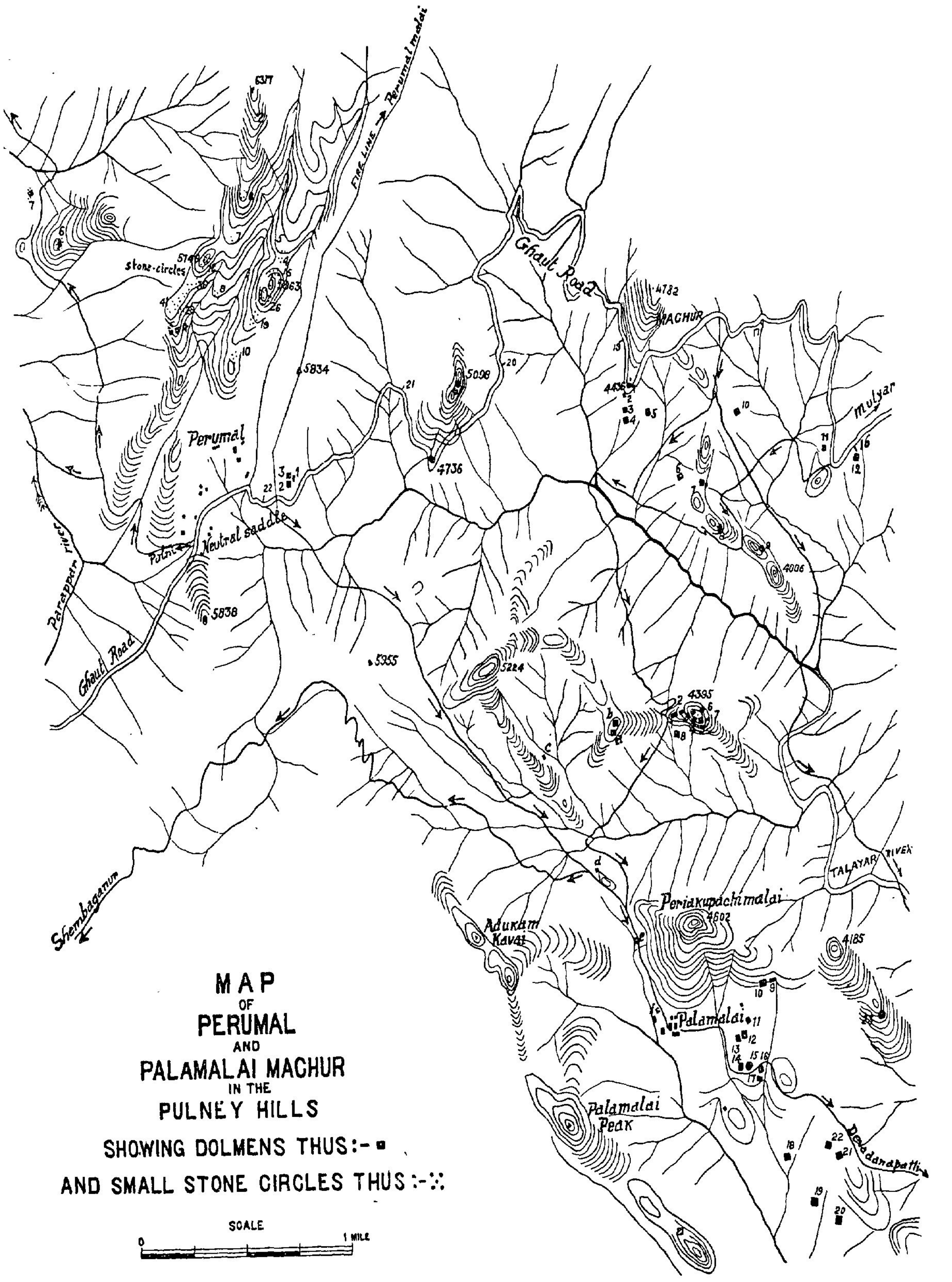

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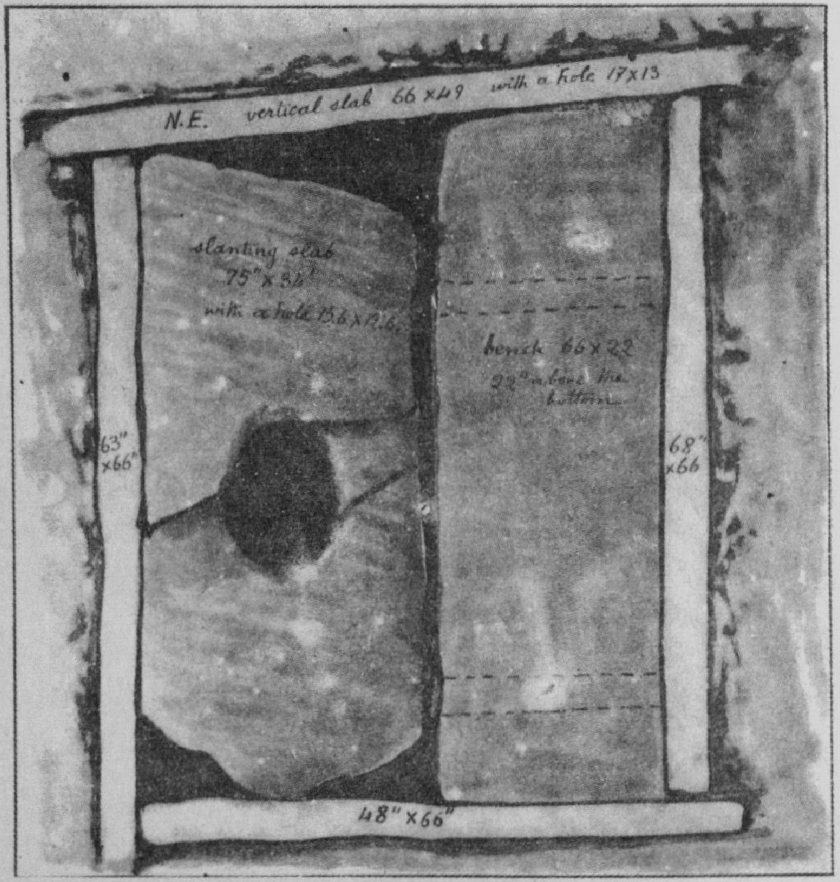
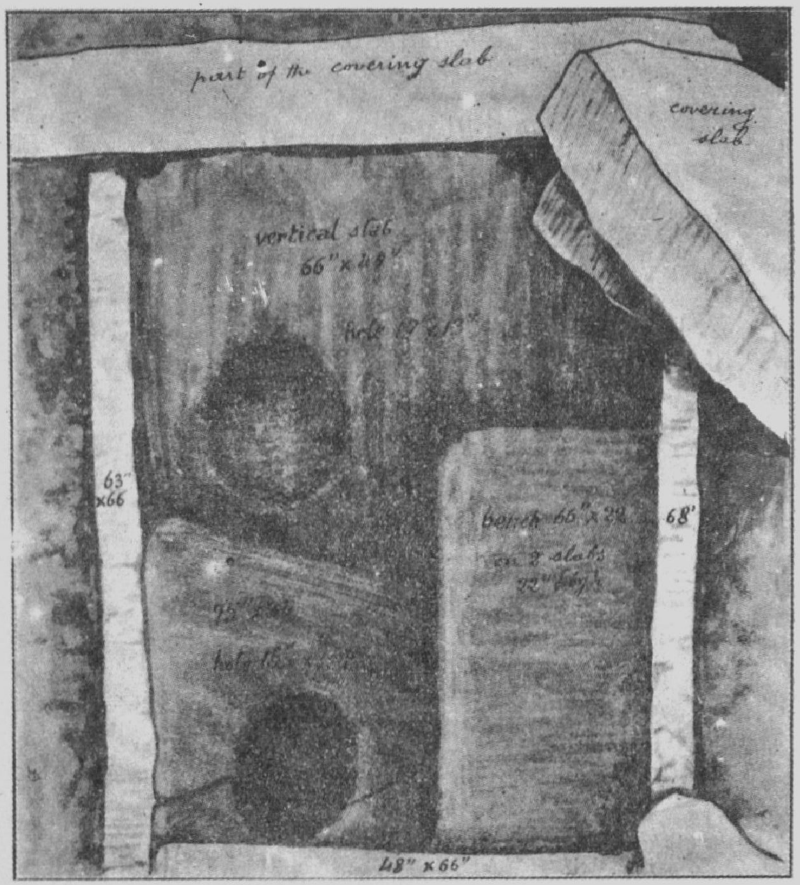


a. Ground plan.



b. Front view as seen from a distance of 3′ or 4′.

Sketch of a Dolmen on the Mulyar Ridge.